

Birds of Mgambo Proposed Forest Reserve and other East Usambara lowland sites

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Mgambo Proposed Forest Reserve (hereafter PFR), previously unknown biologically, was surveyed in 1996 as part of a larger investigation of two poorly known habitats in the East Usambara lowlands, Tanzania. We visited three other reserves for the same purpose, but report on them elsewhere because their habitat similarities and conservation importance warrant separate coverage. In this paper, we provide an account of the avifauna of Mgambo PFR and supplement this information with bird records of interest from the other East Usambara lowland sites.

Montane and lowland forests of the East Usambaras have received considerable biological and conservation attention over the last decade (briefly reviewed in Cordeiro & Githiru 2000). These studies have provided important baseline data for the conservation of biodiversity in this unique area of Tanzania. Part of this uniqueness is revealed through the numerous endemic forms, such that two Endemic Bird Areas (EBAs) are recognised here: the East African coastal forests EBA and the Tanzania-Malawi mountains EBA (Stattersfield *et al.* 1998).

A good deal is now known about montane and lowland forest birds in the East Usambaras. However, birds from woodland habitats have been notably neglected. To address this deficiency, we visited four forest reserves from August to October 1996, chiefly for ornithological surveys (summarised in Cordeiro & Githiru (1998)). Three sites in the Bombo Valley, Bombo West FR and Bombo East I & II PFRs, consisted mainly of mixed dry forest and *Brachylaena* woodland. They generally supported bird communities different from those of lowland forest habitats. We have reported on the findings for birds of conservation concern at these three particular sites elsewhere (Cordeiro & Githiru 2000).

Among other habitats, Mgambo PFR comprises riverine forest (closely resembling groundwater forests in the area) and *Brachystegia* woodland. It is distinct in nature both from the other woodland sites and the lowland forest. Here we present the most significant records from Mgambo PFR and provide short annotated accounts of bird species of interest from all four sites, emphasising taxa not discussed in Cordeiro & Githiru (2000). Several new records for the area were made during this study: where descriptive details are not provided here, they have been deposited with the Bird Committee of the East Africa Natural History Society.

Mgambo Proposed Forest Reserve

Hamilton & Bensted-Smith (1989) describe the physical geography of the East Usambara mountains, and Cordeiro & Githiru (2000) describe the Bombo Valley forest reserves. Here we give a brief description of Mgambo PFR (04°46' S, 38°48' E). It is located several kilometres north of Mtai FR (see Figure 1 in Evans (1997)) in Muheza District, Tanga Region, Tanzania and is 1346 ha in size (Johansson & Sandy 1996). Altitude ranges from 350–850 m. The boundary of the reserve, surveyed in 1995, was being marked at the time of this study. The main habitats are riverine forest, *Acacia* woodland and, at the top of the easternmost hill, a small patch of *Brachystegia* woodland. The *Brachystegia* has a closed canopy that is 10–20 m high in some places, but generally lacks a developed understorey layer, characteristics that typify Eastern African coastal *Brachystegia* forest (Clarke & Robertson 2000). In the midst of the *Brachystegia* woodland is a tiny patch of forest with a thick understorey. Canopy height of the *Acacia* woodland varies from 3–15 m and bushes, shrubs and grasses dominate this habitat. Trees in the riverine forest, with a canopy height of 10–35 m, include *Ficus* spp., *Albizia* spp., *Newtonia* spp., *Craibia zimmermannii*, *Sorindeia madagascariensis* and *Cordia* spp. The understorey is often dense with saplings and shrubs, including at least two euphorbiaceous species. Small submontane forest patches (which we did not survey) exist on hills at the southern extreme of this reserve.

Small springs, rivers and seasonal streams draining the forest, although few, serve as the source of water for several villages in the area.

Methods

Mgambo PFR was visited from 27 August to 9 September 1996, whereas Bombo East I PFR and Bombo West FR/Bombo East II PFR were surveyed from 10–30 September and 30 September–10 October, respectively. General survey methods for Mgambo were identical to those at the Bombo Valley sites and are detailed in Cordeiro & Githiru (2000). Mist-netting and audio-visual observations were carried out in Mgambo, with particular emphasis on the *Brachystegia* woodland and riverine forest where certain species of conservation concern were expected to occur. Capture effort comprised 5176 (diurnal) and 5952 (nocturnal) net metre hours (m h) for the riverine forest and 144 (diurnal) and 288 (nocturnal) net m h for the *Brachystegia* woodland habitat.

Results

Forty-three species were recorded primarily from the riverine forest and *Brachystegia* woodland (Table 1) and a further 66 in surrounding *Acacia* woodland and cultivation (NC and MG, unpublished data). In total, 39 individuals representing sixteen species were captured in mist-nets: 37 in riverine forest and two in *Brachystegia* woodland. Grey-olive Greenbul

Phyllastrephus cerviniventris, Red-capped Robin-chat *Cossypha natalensis*, African Paradise Flycatcher *Terpsiphone viridis*, Forest Batis *Batis mixta*, and Olive Sunbird *Nectarinia olivacea* were the most frequently captured species.

Species previously unknown from this area

The following species were not indicated to occur in this area in the maps or text of Zimmerman *et al.* (1996): Banded Snake Eagle *Circaetus cinerascens*, Steppe Eagle *Aquila nipalensis*, Thick-billed Cuckoo *Pachycoccyx audeberti*, Wahlberg's Honeybird *Prodotiscus regulus*, Nubian Woodpecker *Campethera nubica*, Bearded Woodpecker *Dendropicos namaquus*, Grey-olive Greenbul *Phyllastrephus cerviniventris*, White-browed Scrub Robin *Cercotrichas leucophrys*, Abyssinian White-eye *Zosterops abyssinicus*, Pygmy Batis *Batis perkeo*, White-crested Helmet-shrike *Prionops plumatus*, Sulphur-breasted Bush-shrike *Malaconotus sulfureopectus*, Hunter's Sunbird *Nectarinia hunteri*, Yellow-spotted Petronia *Petronia pyrgita* and Jameson's Firefinch *Lagonosticta rhodopareia*.

Another seven species recorded from our study area were specifically listed as 'scarce', 'rare' or absent in the Usambara mountains and/or environs by Zimmerman *et al.* (1996). These were: Blue-spotted Wood Dove *Turtur afer* (several individuals, eastern reserve boundary of Mgambo PFR, and near the village of Bwiti); Emerald-spotted Wood Dove *T. chalcospilos* (common at all sites, found mainly in open woodland, not in forest); Arrow-marked Babbler *Turdoides jardineii* (not uncommon in *Acacia* woodland and cultivation with thicket and grass cover in environs of all sites); Spotted Morning Thrush *Cichladusa guttata* (two observed in Bombo Valley); Red-winged Starling *Onychognathus morio* (fair numbers in Mgambo and Bombo East I PFRs, flocks of 5–40 birds); Red-headed Weaver *Anaplectes rubriceps* (two pairs, *Acacia* woodland in Bombo Valley sites); African Firefinch *Lagonosticta rubricata* (not uncommon from 350–600 m at all sites; see below).

Other species of interest

Banded Snake Eagle *Circaetus cinerascens* An individual was observed at the edge of Bombo East II PFR flying above a nesting pair of Southern Banded Snake Eagles *C. fasciolatus* on 13 September (Cordeiro & Githiru 2000). It was distinguished from *fasciolatus* by the brown extending from chin to belly and by tail pattern: a single white band separating two wide blackish bands.

Southern Banded Snake Eagle *Circaetus fasciolatus* In addition to our records in the Bombo Valley (Cordeiro & Githiru 2000) and other documentation of this raptor in the East Usambara lowlands (CTRP 1994, Evans 1997), we observed possible breeding activity in September at Mgambo PFR — a pair calling and displaying in dense riverine forest.

Steppe Eagle *Aquila nipalensis* On 8 October, one juvenile was observed gliding downwards over Bombo West FR, landing on the hill in Bombo East II PFR where it remained on a dead tree for several minutes. This species has not previously been reported from the coastal area, but stragglers might occasionally turn up given its presence in nearby Mkomazi and Tsavo (Zimmerman *et al.* 1996).

Sooty Falcon *Falco concolor* Known from the Amani area where it was reported as an infrequent visitor from October to March (Sclater & Moreau 1932–33). An individual was observed gliding slowly over *Acacia* woodland and into the *Brachylaena* woodland (Bombo West FR) at 18:25 on 1 October. It was differentiated from Grey Kestrel *F. ardosiaceus* (not known from this area) by the presence of a yellowish cere, pale chin, and a thin long tail, which was strongly wedge-shaped due to the longer central tail feathers. It fanned its tail feathers, making the shape more distinctive.

Thick-billed Cuckoo *Pachyococyx audeberti* Despite significant coverage in the East Usambaras where its host, Retz's Helmet-shrike *Prionops retzii*, commonly occurs (e.g. Stuart 1989, Evans 1997), this cuckoo was previously unknown in the area until our survey. We recorded only one individual in the hill-top *Brachystegia* woodland in Mgambo PFR on 4 September. Its presence was initially revealed by its loud, distinctive calls and unusual raptor-like gliding in circles, followed by landing in the open canopy where it generally perched on bare outer branches. In Kenya it is known from the Arabuko-Sokoke Forest, and more recently from the Taita Hills (Githiru 1999).

African Barred Owlet *Glaucidium capense* Noted from the foothills of the West Usambaras at Mombo (Sclater & Moreau 1932–33), and not reported from the East Usambaras by Zimmerman *et al.* (1996); however, it was recorded from there by Cambridge Tanzania Rainforest Project (CTRP 1994). Besides the record from Kwamgumi (CTRP 1994), Evans (1997) notes it from Longuza FR. Although none was heard in the *Brachystegia* woodland in Mgambo PFR, they occurred at high density in the thick riverine habitat: at least six individuals were heard calling from an area of around 1 km². Densities in Bombo East I PFR and Bombo West FR (each almost three times the area of Mgambo) appeared to be lower, with three to four and about five heard, respectively. Birds at all sites responded to playback and vocal imitations, but were very hard to observe when brought in close (cf. Fanshawe & Ngala 1994). This owlet is clearly widespread in this area of the East Usambara lowlands and may occur in the *Brachylaena* woodlands north of the Bombo Valley.

Wahlberg's Honeybird *Prodotiscus regulus* Only one individual was observed, just outside Mgambo PFR in dry *Acacia* woodland.

Table 1. Species found primarily in the riverine forest and associated riparian vegetation and *Brachystegia* woodland (Br) in Mgambo PFR.

Species that foraged above these two habitats are marked *.

Species	Notes
Southern Banded Snake Eagle <i>Circaetus fasciolatus</i>	
African Goshawk <i>Accipiter tachiro</i>	
African Crowned Eagle <i>Stephanoaetus coronatus</i>	
Crested Guineafowl <i>Guttera pucherani</i>	
Tambourine Dove <i>Turtur tympanistria</i>	
Red-eyed Dove <i>Streptopelia semitorquata</i>	
Fischer's Turaco <i>Tauraco fischeri</i>	
Thick-billed Cuckoo <i>Pachycoccyx audeberti</i>	Br (550 m)
Yellowbill <i>Ceuthmochares aereus</i>	
African Banded Owllet <i>Glaucidium capense</i>	(below 500 m)
African Wood Owl <i>Strix woodfordii</i>	
Narina Trogon <i>Apaloderma narina</i>	
African Pygmy Kingfisher <i>Ispidina picta</i>	
Mottled Spinetail <i>Telacanthura ussheri</i>	*
Mottled Swift <i>Apus aequatorialis</i>	*
Trumpeter Hornbill <i>Bycanistes bucinator</i>	
Silvery-cheeked Hornbill <i>B. brevis</i>	(400 m)
Crowned Hornbill <i>Tockus alboterminatus</i>	
Scaly-throated Honeyguide <i>Indicator variegatus</i>	
Pallid Honeyguide <i>I. meliphilus</i>	
Mombasa Woodpecker <i>Campethera mombassica</i>	
Striped Pipit <i>Anthus lineiventris</i>	Br
Black Rough-wing <i>Psalidoprocne pristoptera</i>	
Grey-olive Greenbul <i>Phyllastrephus cerviniventris</i>	(300-500 m)
Red-capped Robin-chat <i>Cossypha natalensis</i>	
Eastern Nicator <i>Nicator gularis</i>	
Eastern Bearded Scrub Robin <i>Cercotrichas quadrivirgata</i>	
Ashy Flycatcher <i>Muscicapa caerulescens</i>	
Grey-backed Camaroptera <i>Camaroptera brachyura</i>	
Black-headed Apalis <i>Apalis melanocephala</i>	
African Paradise Flycatcher <i>Terpsiphone viridis</i>	
Forest Batis <i>Batis mixta</i>	
Pale Batis <i>B. soror</i>	Br
Retz's Helmet-shrike <i>Prionops retzii</i>	
Tropical Boubou <i>Laniarius aethiopicus</i>	
Black-backed Puffback <i>Dryoscopus cubla</i>	
Black-bellied Starling <i>Lamprotornis corruscus</i>	
Collared Sunbird <i>Anthreptes collaris</i>	
Plain-backed Sunbird <i>A. reichenowi</i>	(below 500 m)
Olive Sunbird <i>Nectarinia olivacea</i>	
Green-backed Twinspot <i>Mandingoa nitidula</i>	
Peters's Twinspot <i>Hypargos niveoguttatus</i>	
Red-headed Bluebill <i>Spermophaga ruficapilla</i>	(400 m)

Mombasa Woodpecker *Campethera mombassica* Apart from the Bombo Valley sites (Cordeiro & Githiru 2000), we very infrequently saw or heard this species in *Brachystegia* woodland in Mgambo PFR.

Nubian Woodpecker *Campethera nubica* This woodpecker was not uncommon at the margins of *Brachylaena* woodland and in *Acacia* woodland in and around Bombo West FR and Bombo East I PFR. It was distinguished from the race *scriptoricauda* of Bennett's Woodpecker *Campethera bennettii* by its white and not speckled throat and its grey-black bill (mandible not pinkish or yellowish as in *scriptoricauda*). Black spotting on the chest and whitish spotting on dorsal parts pointed to the race *pallida*, but birds were not unequivocally separable from the nominate race which occurs nearby (Zimmerman *et al.* 1996). It is of interest that Moreau (1935), in his natural history summary of East and West Usambara birds, mentions *C. bennettii scriptoricauda* as a savannah woodpecker and *C. nubica pallida* as the *Acacia* 'thorn country' woodpecker. While stating that both these habitats surround these mountains, he does not indicate particular localities for each of these species. Specimens from his collection need to be examined for further verification of these species' occurrences in the Usambara lowlands.

Bearded Woodpecker *Dendropicos namaquus* A large male was observed foraging at mid-storey to canopy level in a fire-hit area of *Acacia* woodland in the western part of Bombo East I PFR on 29 September.

African Broadbill *Smithornis capensis* At least three separate territorial individuals were located in Bombo East I PFR, inside dense mixed dry forest.

Striped Pipit *Anthus lineiventris* This localised species was observed once and another was netted in *Brachystegia* woodland atop a rocky hill in Mgambo PFR, at altitudes of 500–550 m. This is lower than the 1000–2000 m altitude range recorded elsewhere in East Africa (Britton 1980).

Grey-olive Greenbul *Phyllastrephus cerviniventris* This species is poorly known, with a rather patchy distribution in East Africa, being partial to riparian habitats or groundwater forests (Britton 1980, Zimmerman *et al.* 1996). The records from riverine forest in Mgambo PFR are the first for the East Usambara lowlands; it has been previously noted from Mombo, which lies at the foot of the West Usambaras (Sclater & Moreau 1932–33). It is conceivable that this species occurs in several unexplored groundwater forest patches at the feet of the Usambara mountain range.

Northern Brownbul *P. strepitans*, **Terrestrial Brownbul** *P. terrestris* and **Fischer's Greenbul** *P. fischeri*: Birds in the *terrestris-strepitans* species pair recorded by Evans (1997) in the East Usambara lowland forest could not be assigned to species. Moreau (1935) and Stuart (1989) only recorded *terrestris* from the area, although there are records of *strepitans* from nearby Tanga (Sclater & Moreau 1932–33) and Mafi Mt (see Evans 1997). Both species were found in the Bombo valley sites; however, *strepitans* was more of an edge and

open woodland species whereas *terrestris* preferred the dense understorey of mixed dry forest or *Brachylaena* woodland.

Both *fischeri* and *terrestris* were observed more often in the mixed dry forest than in the *Brachylaena* woodland. The two species were found together in mixed feeding parties, particularly in Bombo East I PFR.

Tiny Greenbul *P. debilis* Previously known from several East Usambara lowland sites (Evans 1997). Although not recorded in pure *Brachylaena* stands in Bombo West FR, the coastal race *rabai* of this greenbul was found in some numbers at Bombo East I PFR. It favoured the mixed dry forest, but also foraged in adjacent *Brachylaena* stands. It was recorded in mixed species flocks with *terrestris* and *fischeri*.

White-browed Scrub Robin *Cercotrichas leucophrys* This was an uncommon resident of scrubby habitat in the Bombo Valley, often announcing its presence by melodiously singing from the top of bushes or small trees, though usually remaining concealed in foliage.

Black-and-white Flycatcher *Bias musicus* A pair was observed in a *Ficus* tree along the Bombo River, just outside Bombo East I PFR. Other nearby populations of this species have been found at Kwemkole at the base of Mt Lutindi (Cordeiro 1998) and in Mtai FR, where it was infrequently encountered in 1990 (Evans & Anderson 1992).

Abyssinian White-eye *Zosterops abyssinnicus* A small flock (7–8) of this species was observed in dry *Acacia* woodland in the central parts of Bombo West FR on 9 October.

Pygmy Batis *Batis perkeo* Only recently added to the Tanzanian check-list from the nearby Mkomazi area (Lack 1994), this dry country batis was observed in pairs on three occasions, once in *Acacia* woodland just outside the western portion of Bombo East I PFR and twice in Bombo West FR (possibly the same pair, in *Acacia* woodland and in the ecotone between this habitat and *Brachylaena* woodland). Given its close similarity to the other two batises in the area, Pale Batis *B. soror* and Black-headed Batis *B. minor*, careful note needs to be made of the physical differences. The females of both of the confusing species have a cinnamon-tawny throat patch as well as a breast band, a feature lacking in the smaller *B. perkeo*.

White-crested Helmet Shrike *Prionops plumatus* A flock of 15–20 birds of the race *poliocephalus* was found foraging on the burnt ground in *Acacia* woodland in the western part of Bombo East I PFR on 29 September.

Sulphur-breasted Bush-shrike *Malaconotus sulfureopectus* Zimmerman *et al.* (1996) do not map this bush-shrike in the East Usambara area. Sclater & Moreau (1932–33) mention it for north-east Tanzania, while Moreau (1935) notes it as a savannah species around the Usambaras; neither specifies a locality. Most of our records came from the dry *Acacia* woodland in Bombo

West FR and Bombo East II PFR, and it seldom visited the periphery of the denser *Brachylaena* woodland.

Plain-backed Sunbird *Anthreptes reichenowi* Well-known from the East Usambara lowland forests (Evans 1997). Five individuals (two females, three males) were observed together with Black-headed Apalises *Apalis melanocephala* and Collared Sunbirds *Anthreptes collaris* gleaning insects off the flowers in a single flowering tree in Mgambo PFR.

Hunter's Sunbird *Nectarinia hunteri* We saw this species, probably the same male, three times, as it visited flowering *Acacia* trees just bordering the western section of Bombo East I PFR. This semi-arid area forms a link to the arid belts of the Mkomazi and Tsavo, so the presence of several dry-country species here is no great surprise. Scarlet-chested Sunbird *N. senegalensis*, with which *N. hunteri* is allopatric (Britton 1980, Zimmerman *et al.* 1996), was only encountered in cultivation about 12 km south of Bombo East I PFR (Cordeiro 1998).

Yellow-spotted Petronia *Petronia pyrgita* Not reported from the coastal areas south of the Sabaki River in Kenya and regarded as absent from the Usambara mountains (Zimmerman *et al.* 1996). Several individuals were observed in the *Acacia* woodland around or in Bombo East II PFR and Bombo West FR.

Red-headed Weaver *Anaplectes rubriceps* At least two pairs were observed, one in a fire-hit zone of *Acacia* woodland in Bombo East I PFR and the other in *Acacia* woodland in and around Bombo East II PFR and Bombo West FR.

Red-headed Bluebill *Spermophaga ruficapilla* Evans (1997) summarizes his most recent observations of this finch in the Usambara lowlands. The record of a pair in dense riverine forest at Mgambo PFR is the most northerly so far of the sub-species *cana*.

Jameson's Firefinch *Lagonosticta rhodopareia* and African Firefinch *L. rubricata* Both species were located at Mgambo PFR and in the Bombo Valley. The stockier *rubricata* preferred dense grassy, hillside vegetation, while the smaller and more slender, tree-perching *rhodopareia* was encountered (rarely) feeding in areas of bare ground amongst grassy tussocks, close to tall trees with dense foliage. *L. rhodopareia* was previously unknown from the area whereas *rubricata* was believed to be scarce (Zimmerman *et al.* 1996); however, with our records and those from the slopes of Mt Nilo (Cordeiro 1998), it seems likely that *rubricata* is not uncommon in hilly, rocky terrain with adequate grass cover in the East Usambaras.

Discussion

Avifauna of Mgambo PFR

In general, the forest avifauna of Mgambo PFR was impoverished compared to other East Usambara sites (e.g. Evans 1997) or to mixed dry forests in the Bombo Valley sites (Cordeiro & Githiru 2000). It still appears impoverished when compared to similar elevations of lowland forest, for instance in the nearby Mtai Forest Reserve just to the south (Evans & Anderson 1992, 1993). Likely reasons for such low diversity in Mgambo PFR may relate to the small size and lack of structural diversity of the riverine forest in comparison to lowland forests like Kwamgumi and Kambai (CRTP 1994, Evans 1997). Other factors including disturbance such as fires, grazing and cultivation may also interact to reduce suitable habitat for forest birds. Nevertheless, the presence of three near-threatened species of birds (Southern Banded Snake Eagle, Fischer's Turaco and Plain-backed Sunbird) illustrates the importance of these previously unexplored habitats for species of conservation concern.

The *Brachystegia* woodland in Mgambo, though only a small patch, contained a few oddities, such as the Thick-billed Cuckoo and Striped Pipit. *Brachystegia* woodland patches appear to be very scarce in north-eastern Tanzania. Local people reported further small tracts north and east of Mgambo, but these have not yet been explored biologically.

For purposes of bird conservation, Mgambo PFR is less significant than other lowland East Usambara forests, which shelter many more species of regional and global conservation concern (Evans & Anderson 1993, CRTP 1994, Evans 1997). Nevertheless, this reserve is unique in having the only protected *Brachystegia* patch in the region. Two typical *Brachystegia* inhabitants, Thick-billed Cuckoo and Pale Batis, are now known to occur, and a third, Sokoke Pipit *Anthus sokokensis*, might be located in future (see below).

New records for the area

Given the focus in recent decades on montane and lowland forest birds in the East Usambaras, it is unsurprising that this investigation of mixed dry forest and woodland yielded 16 new records for the area. The presence of arid habitat elements typical of Mkomazi Game Reserve (only about 30 km away) and Tsavo East NP is probably enabled through contiguous arid habitat extending to the environs of Bombo Valley.

We hope that our findings stimulate others to explore these habitats in more depth, perhaps with the potential of finding additional species. For example, one small pipit, heavily streaked on the breast, was located in the *Brachystegia* woodland in Mgambo PFR. However, its frequent flights when disturbed and scurrying in grass cover prevented us from identifying it to species level. The Sokoke Pipit has not yet been found in the East Usambaras, but there is every possibility that this low-density and secretive

bird occurs here, especially since it is known from north and south of these mountains (Collar *et al.* 1994). We recommend that further visits to these woodlands be made by interested ornithologists, and that priority should be given to the less accessible *Brachylaena* woodland patches north of the Bombo Valley and closer to the Kenyan border.

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